FESHM 5400: EMERGENCY EYEWASH AND SHOWER STATIONS

Revision History

Author	Description of Change	Date
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1.0 INTRODUCTION

This chapter covers the use, inspection and maintenance of emergency eyewash and shower equipment used for immediate treatment of exposure to corrosive chemicals. It also identifies requirements of the Occupational Safety and Health Administration (OSHA) and guidelines established by the American National Standards Institute (ANSI), as well as best practices for emergency shower and eyewash construction, location, installation, testing, maintenance, and inspection.

This equipment is located in various parts of the lab that routinely use corrosive chemicals, such as battery charging areas and hazardous substance dispensing and storage areas. The need for these units shall be determined as part of a hazard assessment of the work being performed. Properly maintained emergency eyewash and shower units could be the difference between a catastrophic incident and a minor chemical contact incident.

The OSHA General Industry Standard and the Construction Standard state "Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use."

2.0 DEFINITIONS

2.1 Eyewash- A device used to irrigate and flush the eyes.

2.2 Eye/face wash- A device used to irrigate and flush both the face and the eyes.

2.3 Handheld drench hose- A device designed to flush the face or other body parts.

2.4 Personal eyewash units (solution/squeeze bottles)- A supplementary eyewash that supports plumbed units, self-contained units, or both, by delivering immediate flushing fluid.

2.5 Plumbed unit- An eyewash or shower that is connected to the plumbing system of a building. They deliver a continuous, uninterrupted flow of water.

2.6 Shower (also known as deluge shower)- A device designed to flush the entire body.

2.7 Self contained unit- An eyewash or shower that contains its own flushing fluid that delivers a fixed amount of solution based upon the size of the container. These units must be refilled or replaced after use.

2.8 Tepid- Moderately warm; lukewarm.

2.9 Testing- Performed weekly to ensure proper operation of the unit and to flush contaminants from the line.

3.0 RESPONSIBILITIES

3.1 ES&H Section

3.1.1 Perform periodic documented audits of the program.

3.1.2 Provide tags to the Laboratory population to document tests of emergency shower and eyewash stations.

3.2 Division/Section/Center

3.2.1 Perform the weekly test of emergency eyewash and emergency shower units to ensure program requirements are met.

3.2.2 Perform annual inspection of emergency eyewash and emergency shower units.

3.3 Supervisors

3.3.1 Ensure that all affected employees are instructed in the proper use and location of the units in their area.

3.3.2 Assign an employee to perform the weekly test of emergency eyewash and emergency shower units and instruct the employee on the test protocol.

3.3.3 Instruct employees on the location, use and application of personal eyewash equipment. When addressing washing of the eyes, instruction shall discuss holding the eyelids open and rolling the eyeballs to have the flushing fluid flow on all surfaces of the eye and under the eyelid.

3.3.4 Conduct hazard assessments with the assistance of the Senior Safety Officer.

3.3.5 Develop an Emergency Response Plan with the assistance of the Senior Safety Officer.

3.4 Senior Safety Officers

3.4.1 Assist Supervisors with hazard assessments.
3.4.2 Assist Supervisors with the Development of an Emergency Response Plan.

4.0 PROGRAM DESCRIPTION

Emergency units use potable (drinking quality) water and may be preserved with buffered saline or other solution, or may contain self-contained saline bags. When maintained correctly, they will remove harmful contaminants from the eyes, face, skin, or clothing. Depending on the potential extent of the exposure, a variety of types may be used.

4.1 Location of Units

The first 10-15 seconds are critical in an exposure emergency and any delay may cause serious, irreversible injury. Employees must have ample time to reach the emergency shower or eyewash with a goal of 10 seconds or less. This translates to approximately 55 feet. Unit placement location must give due consideration to workplace lighting, obstructions to the path of travel and the work environment.

If the unit is plumbed or self-contained, the distance between the floor and the drench showerhead should be between 82 and 96 inches.

In some cases, where the hazard is not corrosive, the work area may be separated from the emergency shower or eyewash by a door. This is acceptable as long as the door opens toward the emergency unit. In addition to placement and location concerns, the work area should be maintained in an orderly fashion to ensure an unobstructed path for the exposed employee.

There should also be highly visible, well-lit signs posted in the area to direct exposed employees or those assisting them to the emergency eyewash or shower. An alarm may be installed on the emergency shower or eyewash to alert others of the emergency. This would be especially important for areas where employees work alone or far away from others.

4.2 Drains

While there is no current regulation requiring the installation of drains, it is nonetheless a best practice. The manufacturer's installation instructions may provide direction regarding the size

and type of drain necessary to accommodate the emergency system. Once the unit is activated, wastewater can cause an additional slip, fall or chemical contamination hazard. The emergency unit may be connected to piping or floor drains that lead to a neutralizing tank. Piping out the door is not sufficient. FESHM 8025 must be followed for discharge to a sanitary sewer.

5.0 PROCEDURES

In order to determine whether or not an emergency eyewash or shower is necessary, a hazard assessment shall be conducted by the Supervisor with the assistance of the Senior Safety Officer to determine potential employee exposures. Points to consider:

- Are there potentially hazardous chemicals in the work area?
- How many workers will be in the area with the hazardous substance?
- Are there isolated workers?

The type of hazard involved will dictate the type of eyewash or shower to be used. For dust or particle exposures, a general eyewash station or a portable personal wash unit is sufficient for use until the employee reaches a permanent station. Employees working around acids and/or caustics should be provided full body showers and a combination eye/face wash station.

5.1 Inspections

Units can either meet the minimum requirements or function and perform at the highest level of quality possible to effectively protect employees. The best way to ensure the highest level of quality is to perform regular inspections on the emergency shower and eyewash units. A documented inspection shall be done annually. The inspection should be very detailed and include fluid flow test, unit functionality, and a physical inspection of the unit's construction. The manufacturer's recommendations shall be considered during the inspection.

5.1.1 Emergency shower or eyewash testing

Non-self-contained eyewash stations and showers shall be tested weekly to ensure proper operation, clear sedimentation that may clog the supply line and reduce any microbial hazard by flushing stagnant water. If the unit is not flushed periodically, a bacterial strain known as acanthamoebae can develop to a high enough level to cause harm to the user. A weekly, sixty second flushing at a minimum will reduce the level of acanthamoebae. Eyewashes must be capable of delivering flushing fluid to the eyes not less than .4 gallons per minute for 15 minutes.

The water in self-contained eyewash stations with preserved potable water and personal wash units shall be changed at least every six months or according to manufacturer's instructions. Completed tests can be documented by dating and initialing a tag that can be attached to the unit, or by using the log sheet in Appendix A of this chapter.

5.1.2 Water Temperatures

The temperature should also be checked during the inspection process. The water should be 60-100 degrees Fahrenheit or "tepid." Higher temperatures may increase the intensity of a chemical burn on the skin and in the eyes. Lower temperatures may cause hypothermia. To protect the emergency unit from freezing in cold temperatures, freeze protection or insulation should be used. The Division/Section/Center Safety Department and the Medical Department should be consulted for water temperature concerns and related issues.

5.2 Employee Training

Employees working in the area of a potential exposure should be instructed on how to use the emergency showers and/or eyewash units. The instruction includes:

- The proper way to use the unit
- Location of the units
- Information discouraging the use of contact lenses in a chemical environment
- Contact lens removal in an emergency (leave them in, rinse without delay)
- A hands on drill.

An emergency response plan should also be developed by the Supervisor with the assistance of the Senior Safety Officer and communicated to all employees. Emergency eyewash and emergency eye and face wash units may look similar, but quality and performance may be different.

6.0 Appendix A

Emergency Eyewash/Shower Testing Record

1. Eyewashes and showers must be tested weekly. The station must be unobstructed.
2. The station must have an eyewash or shower sign posted.
3. The eyewash or shower must be easily activated.
4. Flush the eyewash/shower for at least 60 seconds.
5. The nozzles on eyewashes must be equipped with protective covers.
6. The covers must be removed by eyewash activation.
7. The water must flow from both eyewash nozzles.
8. The water from both sides of the eyewash must be of equal height.
9. The water must be clear after flushing.
10. Initial the appropriate box below to document a passing inspection.
11. If inspection fails, notify the Division/Section/Center.

Should an eye exposure occur, flush the affected eye(s) for 15 minutes. To ensure adequate flushing, hold eyelid(s) open and roll the eyeball.

For body exposure, remove affected clothing.

Year:	Week 1	Week 2	Week 3	Week 4	Week 5
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					